XIX.—*A few Remarks respecting Insects supposed to be distasteful to Birds.* By Arthur G. Butler, F.L.S., F.Z.S., &c.

The question as to the distasteful nature of certain insects and their larvæ has of late years occupied the attention of several eminent naturalists, and certainly is one worthy of consideration.

Many years ago I published an account of experiments which I had recorded touching the refusal of certain caterpillars &c. by lizards, frogs, and spiders: the attention which that paper of mine has since received has been interesting, as showing how very little has since been done by naturalists either to prove or disprove the truth of the theories based thereon.

The other day I was reminded by a simple occurrence of the fact that two years ago Mr. Poulton asked me to take careful notes of all insects and their larvæ or pupæ which were accepted or rejected by my birds (if I remember rightly I had at the time about 108 birds), and to send the notes to him, to assist him in more thoroughly investigating the subject. This I did most conscientiously, not even retaining a copy of my notes, but so far nothing seems to have come of it; I presume therefore that my facts have rather tended to mystify than clear the matter up, for the following reason:—

My experience ever since I have kept birds—nearly six years—has been that no insect in any stage was ever refused by all the birds, what one bird refused another would eat *; but the other day I thought I had discovered a moth which no bird would touch—*Zenzera æsculi* ♀. I threw it into my aviary of insectivorous birds, and they positively showed fear of it; the Grey Wagtail inspected it askance from a yard's distance, but flew off in a fright when the moth moved; at the end of half an hour I took it away and gave it to my Missel-Thrush, who behaved exactly as I had seen him do to the stag-beetle (*Lucanus cervus*), standing almost on tiptoe, giving it a sudden peck, and immediately jumping back; finding, however, that no harm resulted from his boldness, he presently plucked up courage, pulled it to pieces, and devoured it, apparently with the greatest satisfaction. What is there in a wood-leopard moth to produce fear in a bird? Certainly not the smell, for both Missel-Thrush and Blackbird

* Possibly *Zygæna* and *Procris* may be exceptions; I have had none lately.

at once attack *Cossus ligniperda*, and although it is evidently not relished by them, my blackbird devoured one and thereby made his cage offensive for weeks. There must, I think, be something startling to birds in the violent black and white contrasts in the colouring of the moth which makes them hesitate to touch it.

The idea that metallic colours are a protection to insects is a mistake; they are rather the reverse. A bird knows nothing of the nature of metal, but whatever is brilliant and shining he makes for at once, to see whether it is good to eat; all insectivorous birds, excepting, I think (but Mr. Poulton has my notes and can correct me if I am wrong), the Wryneck, will eat the golden chrysalides of *Vanessa urticæ*, and as for those bright metallic moths, the *Plusiæ*, they are devoured immediately, as I found quite recently when I turned *P. chrysitis* into my outside aviary and the Grey Wagtail seized and tore him to pieces directly he settled.

As a rule it may be taken for granted that finches, omitting birds with such bunting-like habits as the type of *Fringilla* and the Waxbills, are very slightly insectivorous, and therefore are very particular as to what they eat. Thus the Linnet group, including the Canary, will occasionally eat small green caterpillars, the Goldfinch group, including the Siskin, will eat aphides in abundance and probably also green caterpillars; the Chaffinch and Brambling, on the other hand, which more nearly resemble the Buntings in their mode of progression, are both ravenous insect-eaters, quite as much so as the Nonpareil, Indigo Finch, or Weaver-birds.

Of truly insectivorous birds the Thrushes and their allies the Robins, including the Nightingale, are the least particular, the Missel-Thrush and Blackbird even eating without hesitation the most hairy of hairy caterpillars, merely waiting to rub off the bristles before swallowing them; the Wryneck, on the other hand, is extremely dainty.

It therefore appears to me that certain species of Lepidoptera and of other insects may become abundant in certain years owing to the temporary scarcity of their particular enemies, but that never do they enjoy perfect immunity from destruction.

Before closing these remarks I wish to disabuse entomologists of the notion that the spider-like appearance of the larva of *Stauropus* is intended as a protection against birds. If there is one thing that all insectivorous birds love it is a spider; unless he is at the point of death the sight of a spider will rouse even a sick bird to activity; the shout of pleasure which a Bulbul gives when you offer him a spider is alone

sufficient evidence of the absurdity of supposing that because the Arachnida are terrible to women they must therefore be equally alarming to birds.

The sting-like tentacles of the larva of *Dicranura vinula* are likewise no protection; three young Nightingales, which I had the year before last, never hesitated for a moment to use the tentacles as handles to assist them in knocking the life out of the caterpillar before devouring it.

XX.—*Diagnoses of new Shells from Lake Tanganyika.*

By Edgar A. Smith.

A small series of shells from Lake Tanganyika has lately been purchased of Mr. Coode Hore by the British Museum. Among other interesting specimens are some very remarkable varieties of *Neothauma tanganyicense*, considerably larger and more finely developed than those originally described and showing also much variation in form. After careful consideration I cannot but regard all the five described species * of this genus as modifications of one and the same variable form.

The collection also contains some very fine examples of *Pleiodon Spekei*, Woodward, *Spatha tanganyicensis*, Smith, and *Unio Burtoni*, Woodward, fresh specimens of *Limnotrochus Kirki* but without opercula, a large form of *L. Thomsoni*, and a large, solid, tabulated variety of the ever variable *Paramelania nassa*. Taking the extreme forms of the last species, it seems impossible to regard them as belonging to the same species; yet in large series it becomes impossible to draw reasonable lines of specific limitation. Bourguignat in his absurd manner has already created twenty-three so-called species out of this remarkable shell!

Some specimens of *Spekia zonata*, Woodward, fortunately contain the operculum, which has not previously been observed.

It has the appearance of being rather small in proportion to the size of the shell. It is of a long ovate form, concave externally, concentrically striated except near the central nucleus, where it is paucispiral. The lower surface has a smooth glossy margin, broader on one side than on the other, and the muscular impression is dull, ovate, and marked with concentric lines of growth.

* *Vide* Grandidier, Bull. Soc. Mal. France, vol. ii. pp. 162–164; Bourguignat, Moll. terr. et fluv. du lac Tanganyika, 1885, pp. 25–29.